Maricopa County
Air Quality Department

Maricopa County Air Quality Department
1001 N Central Ave, Suite 125, Phoenix, AZ 85004
Phone (602) 506-6010 Fax (602) 372-0587
AQPermits@mail.maricopa.gov

NON-TITLE V PERMIT - MINOR MODIFICATION APPLICATION

RECEIVED
JUL 20 2015
MARICOPA COUNTY
AIR QUALITY DEPARTMENT

NOTIFICATION OF MINOR MODIFICATION AT A CURRENTLY PERMITTED FACILITY

ALL APPLICANTS MUST COMPLETE THE ENTIRE APPLICATION

Per Rule 220, Section 405 and Section 406, this notification must be submitted for a currently permitted facility for a minor permit revision. This notification is not required for changes in work schedules or relocation of equipment for similar use within a permitted facility.

Important: Please note that email will be our primary means for routine communication with you, unless you do not have an email account. Please be sure that your email address is entered correctly.

Submit this notification prior to making the modifications. If confidentiality is claimed pursuant to ARS §49-487, a fully completed application with confidential information clearly identified along with a separate copy of the application for public review without the confidential information and a written justification for the confidentiality claimed must be submitted. Complete both sides by typing or printing legibly. A filing fee of **$200.00** must accompany your application (make checks payable to MCAQD). If the application is submitted as a result of receiving a notice of violation (NOV), an additional **$100.00** late fee must accompany the application. Before the permit is issued, the Permittee will be billed for all permit processing time required for a billable permit action at a rate of $150.00 per hour, adjusted annually under Department Rule 280 (Fees), §304. An annual administrative fee will also be charged per Rule 280, §302.2. For questions regarding billing, call (602) 372-1071.

Business Name:	Hickman's Egg Ranch, Inc.	Existing **Air Quality Permit Number** for this Site:	040136 - 408551
Address of Site:	32425 West Salome Hwy.		
City :	Arlington	State : **AZ**	Zip Code: 85322
Telephone At Site :	623-386-1333		
Contact Person at Site :	Francisco G. Ruiz (Frank)		
Mailing Address :	224 North 4th Street		
City :	Buckeye	State: AZ	Zip Code: 85326
Telephone :	623-872-2341		
Fax :	623-474-6392	E-mail :	fruiz@hickmanseggs.com

Based on information and belief formed after reasonable inquiry, the statements and information in this document are true, accurate, and complete.

Date : July 17, 2015

Signature of owner or responsible official of business :

Type or print name and title : Francisco G. Ruiz/Safety & Health Coordinator

Do Not Write In This Space.

Reviewed by: _____ Date : _____

☐ Approved ☐ Denied

Reason for denial :

For Office Use Only	Date Received:	Log Number:

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1. Narrative description of the proposed modification :

Addition of Rotary Dryer with Baghouse for manure drying operation, and the installation of a 15,000 gallons propane tank. A request for the removal of the animal feeding production operations requirements from the Air Quality permit. The animal feeding operations are cover by the ADEQ BMP's.

Also, please see attachments

2. Provide a list of equipment and emission control devices which will be installed or modified :

Assigned Equipment Number	Describe each Piece of Equipment Include Make & Model	Date of Installation or Modification	How Many	HP, KVA Gallons or Other Ratings (Specify Units)	Exhaust - Vent to Air	Exhaust - Vent to Control (Identify)		
	Propane Tank, 15,000 Gallons	July, 2015	1	15MMBTU		Baghouse	Add Cell	Remove Cell

3. Material List : List all materials handled, stored, processed, used, mixed, treated, or emitted. Include chemicals, mixtures, resins, cleaning compounds, etc., in this list. Identify each in sufficient detail and provide material safety data sheets (MSDS)

Material	Annual Usage or Throughput	Chemical Composition (% by weight)	Equipment Number in Which Used		
Propane HD-5	341,120 gallons	96.7%		Add Cell	Remove Cell

4. Describe Control Devices

Type of Device	Name/ID	Gas Flow Rate SCFW	Liquid Flow Rate Gal/Min	Control Efficiency (% Weight)		
Baghouse				99.5%		
					Add Cell	Remove Cell

5. Materials reclaimed or shipped as waste :

None

If applicable, complete the attached section Z-M.

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SECTION Z-M AIR POLLUTANT EMISSIONS

Provide a summary of the projected actual air emissions on an annual basis for the entire site in the following summary tables. Attach detailed calculations to support the figures. **If supporting calculations are not included with the application, the application will be deemed incomplete.**

Provide a summary of the actual air emissions on an annual basis for the following three columns:

(i) Emissions to be released from only the equipment and affected processes described on this notification

(ii) The entire site prior to the modification of the equipment and processes described in (i) above.

(iii) The entire site including the emissions identified in (i) above. Normally, this column will be the sum of columns (i) and (ii).

Pollutant	Column (i)	Column (ii)	Column (iii)		
Carbon Monoxide (CO)	1.28 tpy	0	1.28 tpy		
Oxides Of Nitrogen (NO_x)	2.22 tpy	0	2.22 tpy		
Oxides Of Sulfur (SO_x)	Negligible	0	Negligible		
Particulates Of 10 Microns Or Smaller (PM_{10})	Negligible	0	Negligible		
Total Suspended Particulates (TSP), Including PM_{10}	Negligible	0	Negligible		
Volatile Organic Compounds (VOCs)[1]	0.17 tpy	0	0.17 tpy		
Federal hazardous air pollutants (list each one separately):					
				Add Column	Remove Column

[1] VOCs are defined by EPA at: http://www.epa.gov/ttn/naaqs/ozone/ozonetech/def_voc.htm

Attach detailed calculations to support the figures in the above summary tables. Do not include the emissions from motor vehicles. Include the emissions from stationary sources, portable sources, test areas, experimental facilities, evaporative losses, storage and handling losses, fuel loading and unloading losses, etc. Specifically identify the following in detailed calculations:

1. Emissions From Each Point Source And Each Stack
2. Capture Efficiencies
3. Control Efficiencies
4. Overall Efficiencies
5. Fugitive Emissions
6. Non-point (area) Emissions

For particulate (dust) emissions, describe the types of particulates being emitted and the quantities of emissions for each type. Identify and quantify each and every type of VOC that is included in the above summary tables. Whenever a material is identified by a trade name, also provide its generic name and its chemical abstract service (CAS) number.

Help sheets for calculating emissions from specific industries or processes can be obtained at:
http://www.maricopa.gov/aq/divisions/planning_analysis/emissions_inventory/instructions.aspx

If you need help completing the application package, please see our website or contact 602-506-5102.
http://www.maricopa.gov/aq

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FEDERAL HAZARDOUS AIR POLLUTANTS LIST

(Federal Clean Air Act, Title I, Section 112(b))

CAS No.	Chemical name
75070	Acetaldehyde
60355	Acetamide
75058	Acetonitrile
98862	Acetophenone
53963	2-Acetylaminofluorene
107028	Acrolein
79061	Acrylamide
79107	Acrylic acid
107131	Acrylonitrile
107051	Allyl chloride
92671	4-Aminobiphenyl
62533	Aniline
90040	o-Anisidine
1332214	Asbestos
71432	Benzene (including benzene from gasoline)
92875	Benzidine
98077	Benzotrichloride
100447	Benzyl chlo ride
92524	Biphenyl
117817	Bis(2-ethylhexyl)phthalate (DEHP)
542881	Bis(chloromethyl)ether
75252	Bromoform
106990	1,3-Butadiene
156627	Calcium cyanamide
133062	Captan
63252	Carbaryl
75150	Carbon disulfide
56235	Carbon tetrachloride
463581	Carbonyl sulfide
120809	Catechol
33904	Chloramben
57749	Chlordane
7782505	Chlorine
79118	Chloroacetic acid
532274	2-Chloroacetophenone
108907	Chlorobenzene
510156	Chlorobenzilate
67663	Chloroform
107302	Chloromethyl methyl ether
126998	Chloroprene
1319773	Cresols/Cresylic acid (isomers and mixture)
95487	o-Cresol
108394	m-Cresol
106445	p-Cresol
98828	Cumene
94757	2,4-D, salts and esters
3547044	DDE
334883	Diazomethane
132649	Dibenzofurans
96128	1,2-Dibromo-3-chloropropane
84742	Dibutylphthalate
106467	1,4-Dichlorobenzene(p)
91941	3,3-Dichlorobenzidene
111444	Dichloroethyl ether (Bis(2-chloroethyl)ether)
542756	1,3-Dichloropropene
62737	Dichlorvos
111422	Diethanolamine
121697	N,N-Diethyl aniline (N,N-Dimethylaniline)
64675	Diethyl sulfate
119904	3,3-Dimethoxybenzidine
60117	Dimethyl aminoazobenzene
119937	3,3'-Dimethyl benzidine
79447	Dimethyl carbamoyl chloride
68122	Dimethyl formamide
57147	1,1-Dimethyl hydrazine
131113	Dimethyl phthalate
77781	Dimethyl sulfate
534521	4,6-Dinitro-o-cresol, and salts
51285	2,4-Dinitrophenol
121142	2,4-Dinitrotoluene
123911	1,4-Dioxane (1,4-Diethyleneoxide)
122667	1,2-Diphenylhydrazine
106898	Epichlorohydrin (1-Chloro-2,3-epoxypropane)
106887	1,2-Epoxybutane
140885	Ethyl acrylate
100414	Ethyl benzene
51796	Ethyl carbamate (Urethane)
75003	Ethyl chloride (Chloroethane)
106934	Ethylene dibromide (Dibromoethane)
107062	Ethylene dichloride (1,2-Dichloroethane)
107211	Ethylene glycol
151564	Ethylene imine (Aziridine)
75218	Ethylene oxide
96457	Ethylene thiourea
75343	Ethylidene dichloride (1,1-Dichloroethane)
50000	Formaldehyde
76448	Heptachlor
118741	Hexachlorobenzene
87683	Hexachlorobutadiene
77474	Hexachlorocyclopentadiene
67721	Hexachloroethane
822060	Hexamethylene-1,6-diisocyanate
680319	Hexamethylphosphoramide
110543	Hexane
302012	Hydrazine
7647010	Hydrochloric acid
7664393	Hydrogen fluoride (Hydrofluoric acid)
123319	Hydroquinone
78591	Isophorone
58899	Lindane (all isomers)
108316	Maleic anhydride
67561	Methanol
72435	Methoxychlor
74839	Methyl bromide (Bromomethane)
74873	Methyl chloride (Chloromethane)
71556	Methyl chloroform (1,1,1-Trichloroethane)
60344	Methyl hydrazine
74884	Methyl iodide (Iodomethane)
108101	Methyl isobutyl ketone (Hexone)
624839	Methyl isocyanate
80626	Methyl methacrylate
1634044	Methyl tert butyl ether
101144	4,4-Methylene bis(2-chloroaniline)
75092	Methylene chloride (Dichloromethane)
101688	Methylene diphenyl diisocyanate (MDI)
101779	4,4'-Methylenedianiline
91203	Naphthalene
98953	Nitrobenzene
92933	4-Nitrobiphenyl
100027	4-Nitrophenol
79469	2-Nitropropane
684935	N-Nitroso-N-methylurea
62759	N-Nitrosodimethylamine
59892	N-Nitrosomorpholine
56382	Parathion
82688	Pentachloronitrobenzene (Quintobenzene)
87865	Pentachlorophenol
108952	Phenol
106503	p-Phenylenediamine
75445	Phosgene
7803512	Phosphine
7723140	Phosphorus
85449	Phthalic anhydride
1336363	Polychlorinated biphenyls (Aroclors)
1120714	1,3-Propane sultone
57578	beta-Propiolactone
123386	Propionaldehyde
114261	Propoxur (Baygon)
78875	Propylene dichloride (1,2-Dichloropropane)
75569	Propylene oxide
75558	1,2-Propylenimine(2-Methyl aziridine)
91225	Quinoline
106514	Quinone
100425	Styrene
96093	Styrene oxide
1746016	2,3,7,8-Tetrachlorodibenzo-p-dioxin
79345	1,1,2,2-Tetrachloroethane
127184	Tetrachloroethylene (Perchloroethylene)
7550450	Titanium tetrachloride
108883	Toluene
95807	2,4-Toluene diamine
584849	2,4-Toluene diisocyanate
95534	o-Toluidine
8001352	Toxaphene (chlorinated camphene)
120821	1,2,4-Trichlorobenzene
79005	1,1,2-Trichloroethane
79016	Trichloroethyleneprocessing
95954	2,4,5-Trichlorophenol
88062	2,4,6-Trichlorophenol
121448	Triethylamine
1582098	Trifluralin
540841	2,2,4-Trimethylpentane
108054	Vinyl acetate
593602	Vinyl bromide
75014	Vinyl chloride
75354	Vinylidene chloride (1,1-Dichloroethylene)
1330207	Xylenes (isomers and mixture)
95476	o-Xylenes
108383	m-Xylenes
106423	p-Xylenes

Chemical name
Antimony Compounds
Arsenic Compounds (inorganic including arsine)
Beryllium Compounds
Cadmium Compounds
Chromium Compounds
Cobalt Compounds
Coke Oven Emissions
Cyanide Compounds[1]
Glycol ethers[2]
Lead Compounds
Manganese Compounds
Mercury Compounds
Fine mineral fibers[3]
Nickel Compounds
Polycylic Organic Matter[4]
Radionuclides (including radon)[5]
Selenium Compounds

For all listings above which contain the word "compounds" and for glycol ethers, unless otherwise specified, these listings are defined as including any unique chemical substance that contains the named chemical as part of that chemical's infrastructure.

[1] X'CN where X = H' or any other group where a formal dissociation may occur. For example KCN or Ca(CN)2.

[2] Includes mono- and di- ethers of ethylene glycol, diethylene glycol and triethylene glycol R(OCH2CH2)n-OR' where:

n = 1, 2 or 3

R = alkyl C7 or less, or phenyl or alkyl substituted phenyl

R' = H, or alkyl C7 or less, or carboxylic acid ester, sulfate, phosphate, nitrate, or sulfonate.

[3] Includes mineral fiber emissions from facilities manufacturing or glass, rock or slag fibers or other mineral derived fibers of average diameter one (1) micrometer or less.

[4] Includes organic compounds with more than one (1) benzene ring and which have a boiling point greater than or equal to 100°C.

[5] A type of atom which spontaneously undergoes radioactive decay

Emissions Calculations
Hickman's Egg Ranch
32425 W. Salome Highway
Arlington, AZ 85322

1. Propane Cas # 74-98-6
   Molar Mass 44.1 g/mol
   Formula C3H8
   Density 493.00 kg/m3 4.24 lb/gal
   Specific heat capacity 73.60 J K^{-1} mol^{-1} 21,564 BTU/lb 91,500 BTU/gallon

2. Rotary Dryer Burner 15 MMBtu/hr

3. Propane Tank 15,000 lb or 63,600 gallons or can operate 388 hours per tank

4. PTE = 8,760 hours (24/7/265) Estimated Hours 2,080 Work Week 8 hour days/5 days week/ 52 weeks year

5. Estimated Emissions Based on Manufacturers Specifications and Huston Environmental Services confirmation using AP-42 EF, updated July 2008 Section 1.5.

	CO	NOx	SOx	PM-10	TSP	VOCs
EF lb/1000 gallon	7.5	13	0.01	0.7	0.7	1.0
EF lb/MMBTU	0.082	0.142	0.00016	0.008	0.008	0.011
Emissions/Hourly lb/hr	1.23	2.13	0.00	0.11	0.11	0.16
Work Week-TPY	1.28	2.22	0.00	0.12*	0.12 *	0.17
PTE-TPY	5.39	9.34	0.01	0.5	0.5	0.72

lb/MMBTU pounds per Million British Thermal Units
lb/hr pounds per hour
TPY tons per year

- Emissions calculations for PM-10 and TSP does not consider baghouse efficiency. Emissions are negligible after calculating baghouse efficiency and are reported as such on Section Z-M of the Minor Permit Modification Form.

6. Calculation for conversion from BTU per gallon to lb/MMBTU
   91,500 BTU/Gallon of Propane. Burner rate at 15MMBTU/hr
   Sulfur content at 0.1 grains/100cf

Emissions Calculations
Hickman's Egg Ranch
32425 W. Salome Highway
Arlington, AZ 85322

7. It is noted as part of this minor permit modification, the facility will report emissions based on propane fuel-consumption for the rotary dryer. Other than inspections and recordkeeping, per agreement with the Maricopa County Air Quality Department (MCAQD), no performance testing or other emissions-based testing will be required to document compliance with this minor permit modification.

8. It is noted the facility is not required to report emissions from other source categories (i.e. manure and its components) unless the source category is independently subject to the Clean Air Act.

9. It is noted that MCAQD views the rotary dryer as part of the facility's waste management operations for purposes of manure drying, of which, such operations are regulated by the Arizona Department of Environmental Quality (ADEQ). The associated baghouse (and its fines) for the rotary dryer will be regulated by the ADEQ through Agricultural Best Management Practices (BMPs). The ADEQ will establish BMPs for the baghouse outside of this permit.

SYSTEMS Vulcan®
1414 Riley Industrial Dr, P.O. Box 1027, Moberly, Missouri 65270 USA
Telephone: 660.263.7575 International: +1.660.263-7575
Fax: 660.263.2526 E-mail:wwrequip@wwrequip.com
www.wwrequip.com

Emissions Estimation: 13647 Rev. 2

15 MMBtu/hr Propane Burner

Emissions calculated by Vulcan® Systems for Hickman Egg Ranch are included in Table 1.These emissions have been calculated using the USA EPA method AP-42 for External Combustion Sources. Values are not a guarantee of emissions and do not reflect actual running data. Actual emissions will be affected by various factors including furnace pressures, quality of the fuel, running time of the plant, feed material properties, etc. Vulcan® and its parent company Worldwide Recycling Equipment Sales, LLC recommend consulting a certified environmental engineer when filling out any permits relating to any Vulcan® Thermal Desorption or Drying Systems.

Potential Emission Rates[1]					
NO_x[2] Tons/year[8]	**CO[3]** Tons/year[8]	**SO_2[4]** Tons/year[8]	**TOCs[5]** Tons/year[8]	**PM[6]** Tons/year[8]	**CO_2[7]** Tons/year[8]
2.98	1.72	0.00	0.23	0.16	2,868.85
PPM[9]	PPM[9]	PPM[9]	PPM[9, 10]	PPM[9]	PPM[9]
119.91	113.69	0.12	26.34	N/A	119,262.30
lb/hr	lb/hr	lb/hr	lb/hr	lb/hr	lb/hr
2.13	1.23	0.00	0.16	0.11	2,049.18

[1]Considering firing a propane burner at a maximum rate of 15 MMBtu/hr
[2]Expressed as NO_2 and calculated using an emission factor of 3.25 lb/10^3 gallon.EPA AP-42 uses an EF of 13 lb/10^3 gallon for NOx
[3]Calculated using an emission factor of 7.5 lb/10^3 gallon
[4]Considering a Sulfur content of 0.18 grains/100 ft^3 of propane vapor
[5]Total organic compounds calculated using an emission factor of 1 lb/10^3 gallon
[6]Total particulate matter calculated using an emission factor of 0.7 lb/10^3 gallon
[7]Calculated using an emission factor of 12,500 lb/10^3 gallon
[8]Year defined as operating 8 hours/day, 7 days/week, and for 50 weeks/year
[9]Calculated at 3% O_2 in dry flue gases
[10]PPM of TOCs expressed as methane

LIQUEFIED PETROLUEM GAS (LPG) COMBUSTION EMISSIONS CALCULATOR - REVISION D 2/1/2010 - OUTPUT SCREEN

Instructions: Enter emission source / facility data on the "INPUT" tab/screen. The air emission results and summary of input data are viewed / printed on the "OUTPUT" tab/screen. The different tabs are on the bottom of this screen.

This spreadsheet is for your use only and should be used with caution. DENR does not guarantee the accuracy of the information contained. This spreadsheet is subject to continual revision and updating. It is your responsibility to be aware of the most current information available. DENR is not responsible for errors or omissions that may be contained herein.

SOURCE / FACILITY / USER INPUT SUMMARY (FROM INPUT SCREEN)

COMPANY:	Facility Name, Inc.				FACILITY ID NO.:	01/12/00999	
					PERMIT NUMBER:	9999R02	
EMISSION SOURCE DESCRIPTION:	15 MMBTU/HR FIRED BOILER				FACILITY CITY:	ANYTOWN	
EMISSION SOURCE ID NO.:	ES-1				FACILITY COUNTY:	ANYCOUNTY	
SPREADSHEET PREPARED BY:	Your Name				LPG Make Up (%)		
ACTUAL FUEL THROUGHPUT:	341,000	GAL/YR	FUEL HEAT VALUE:	91,600 BTU/Gal	Propane:	96.80	
POTENTIAL FUEL THROUGHPUT:	340,611	GAL/YR	HHV USED FOR GHGs	0.091 mm BTU/Gal	Butane:	3.20	
REQUESTED MAX. FUEL THRPT:	340,611	GAL/YR	BOILER TYPE:	INDUSTRIAL			
METHOD USED TO COMPUTE ACTUAL GHG EMISSIONS:			TIER 1: DEFAULT HIGH HEAT VALUE AND DEFAULT EF				
CARBON CONTENT USED FOR GHGS (kg C/gal):			CARBON CONTENT NOT USED FOR CALCULATION TIER CHOSEN				

CRITERIA AIR POLLUTANT EMISSIONS INFORMATION

	ACTUAL EMISSIONS (AFTER CONTROLS / LIMITS)		POTENTIAL EMSSIONS (BEFORE CONTROLS / LIMITS)		POTENTIAL EMSSIONS (AFTER CONTROLS / LIMITS)		EMISSION FACTOR lb/mmBtu	
AIR POLLUTANT EMITTED	lb/hr	tons/yr	lb/hr	tons/yr	lb/hr	tons/yr	uncontrolled	controlled
PARTICULATE MATTER (PM)	0.11	0.12	0.11	0.50	0.11	0.12	0.008	0.008
PARTICULATE MATTER<10 MICRONS (PM_{10})	0.11	0.12	0.11	0.50	0.11	0.12	0.008	0.008
PARTICULATE MATTER<2.5 MICRONS ($PM_{2.5}$)	0.11	0.12	0.11	0.50	0.11	0.12	0.008	0.008
SULFUR DIOXIDE (SO2)	0.00	0.00	0.00	0.01	0.00	0.00	1.09E-04	1.09E-04
NITROGEN OXIDES (NOx)	2.13	2.22	2.13	9.34	2.13	2.22	0.142	0.142
CARBON MONOXIDE (CO)	1.23	1.28	1.23	5.39	1.23	1.28	0.082	0.082
VOLATILE ORGANIC COMPOUNDS (VOC)	0.16	0.17	0.16	0.72	0.16	0.17	0.011	0.011

TOXIC / HAZARDOUS AIR POLLUTANT EMISSIONS INFORMATION

	CAS	ACTUAL EMISSIONS (AFTER CONTROLS / LIMITS)		POTENTIAL EMSSIONS (BEFORE CONTROLS / LIMITS)		POTENTIAL EMSSIONS (AFTER CONTROLS / LIMITS)		EMISSION FACTOR lb/mmBtu	
TOXIC / HAZARDOUS AIR POLLUTANT	NUMBER	lb/hr	tons/yr	lb/hr	tons/yr	lb/hr	tons/yr	uncontrolled	controlled

TOXIC AIR POLLUTANT EMISSIONS INFORMATION (FOR PERMITTING PURPOSES)

		EXPECTED ACTUAL EMISSIONS AFTER CONTROLS / LIMITATIONS			EMISSION FACTOR lb/mmBtu	
TOXIC AIR POLLUTANT	CAS Num.	lb/hr	lb/day	lb/yr	uncontrolled	controlled

GREENHOUSE GAS POLLUTANT EMISSIONS INFORMATION (FOR EMISSION INVENTORY PURPOSES)

GHG - POTENTIAL TO EMIT NOT BASED ON EPA MRR METHOD

PROPANE	ACTUAL EMISSIONS — EPA MRR CALCULATION METHOD: TIER 1			POTENTIAL EMISSIONS - utilize max heat input capacity and EPA MRR Emission Factors		POTENTIAL EMISSIONS With Requested Emission Limitation - utilize requested fuel limit and EPA MRR Emission Factors	
GREENHOUSE GAS EMITTED	metric tons/yr	metric tons/yr, CO2e	short tons/yr	short tons/yr	short tons/yr, CO2e	short tons/yr	short tons/yr, CO2e
CARBON DIOXIDE (CO_2)	1,907.17	1,907.17	2,102.29	8,902.08	8,902.08	2,113.74	2,113.74
METHANE (CH_4)	9.31E-02	1.95E+00	1.03E-01	4.35E-01	9.13E+00	1.03E-01	2.17E+00
NITROUS OXIDE (N_2O)	1.86E-02	5.77E+00	2.05E-02	8.69E-02	2.69E+01	2.06E-02	6.40E+00
	TOTAL	**1,914.89**		TOTAL	**8,938.15**	TOTAL	**2,122.30**

NOTE: CO2e means CO2 equivalent.

NOTE: The DAQ Air Emissions Reporting Online (AERO) system requires short tons be reported. The EPA MRR requires metric tons be reported.

LIQUEFIED PETROLEUM GAS (LPG) COMBUSTION EMISSIONS CALCULATOR - REVISION D 2/1/2010 - INPUT SCREEN

NCDENR

Instructions: Enter emission source / facility data on the "INPUT" tab/screen. The air emission results and summary of input data are viewed / printed on the "OUTPUT" tab/screen. The different tabs are on the bottom of this screen.

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Directions: Enter and select information in the boxes in the column on the right:

FIELDS	***SELECTIONS***	
COMPANY NAME:	Facility Name, Inc.	
FACILITY ID NUMBER:	01/12/00999	
PERMIT NUMBER	9999R02	
FACILITY CITY:	ANYTOWN	
FACILITY COUNTY:	ANYCOUNTY	
SPREADSHEET PREPARED BY:	Your Name	
EMISSION SOURCE ID NO.:	ES-1	
MAXIMUM HEAT INPUT (MILLION BTU PER HOUR):	15.00	MMBTU/HR
TYPE OF BOILER:	INDUSTRIAL	

(TYPE OVER NUMBER AT RIGHT IF YOU HAVE SITE SPECIFIC DATA)

			DEFAULT VALUES AS FOLLOWS:
These fuel properties are not used for GHG calculations. See below for GHG	FUEL HEATING VALUE (BTU/GAL):	91,600 BTU/GAL	90,500 BTU/GAL
	PERCENT PROPANE:	96.80 %	97.50 %
	PERCENT BUTANE:	3.20 %	2.50 %
	SULFUR CONTENT:	0.1 GRAINS/100 FT^3	0.1 GRAINS/100 FT^3
	ANNUAL HOURS OF OPERATION:	2080 HOURS	8760 HOURS
	ACTUAL YEARLY FUEL USAGE (GALLONS PER YEAR):	341,000 GAL/YR	
	CALCULATED POTENTIAL YEARLY USAGE (GALLONS PER YEAR)	340,611 GAL/YR	
	REQUESTED ANNUAL LIMITATION (GALLONS PER YEAR) (TYPEOVER AS NECESSARY - DEFAULT IS POTENTIAL)	340,611 GAL/YR	
	NOX CONTROL IF PRESENT (DEFAULT IS ZERO)	0 %	0 %

ADDITIONAL INFORMATION FOR GREENHOUSE GAS (GHG) EMISSIONS

ENTER CALCULATION TIER
from EPA Mandatory Reporting Rule (MRR) Subpart C -
www.epa.gov/climatechange/emissions/ghgrulemaking.html
NOTE: EF is "Emission Factor"

TIER 1: DEFAULT HIGH HEAT VALUE AND DEFAULT EF

ENTER FUEL TYPE (PROPANE or BUTANE or LPG)

PROPANE

SINCE TIER 3 IS NOT BEING USED,
FUEL CARBON CONTENT WILL NOT BE USED

2.6700 kg Carbon/gal

SINCE NOT USING TIER 2, THIS HHV IS NOT USED --
DEFAULT HHV (See below) IS USED

0.0800 mm Btu/gal

NOTE: When using TIER 1 or TIER 3, the above HHV will be overridden with the EPA DEFAULT HHV listed below:
DEFAULT VALUES BELOW FROM TABLE C-1, EPA MRR (http://www.epa.gov/climatechange/emissions/ghgrulemaking.html)

PROPANE	0.091 mm Btu/gal	THIS VALUE WILL BE USED FOR GHG calcuations- actual emissions
BUTANE	0.101 mm Btu/gal	
LPG	0.092 mm Btu/gal	

PROPANE	DEFAULT HHV OF	0.091	mm Btu/gal	THIS VALUE WILL BE USED FOR GHG calcuations- actual emissions

LIQUEFIED PETROLEUM GAS (LPG) COMBUSTION EMISSIONS CALCULATOR - REVISION C 10/30/2008 - FACTORS SCREEN

CRITERIA AIR POLLUTANTS

	BUTANE			
POLLUTANT	INDUSTRIAL		COMMERCIAL	
	(LB/10^3 GAL)	(LB/MMBTU)	(LB/10^3 GAL)	(LB/MMBTU)
PM	0.8	0.008	0.8	0.008
SO_2	0.009	8.824E-05	0.009	8.824E-05
NO_X	15	0.147	15	0.147
CO	8.4	0.082	8.4	0.082
TOC	1.1	0.011	1.1	0.011

FUEL	%	TRUE	3.20	TRUE
SIZE	MMBTU	TRUE	15.00	FALSE
		1	0.032	0

CLASS= INDUSTRIAL

	PROPANE			
POLLUTANT	INDUSTRIAL		COMMERCIAL	
	(LB/10^3 GAL)	(LB/MMBTU)	(LB/10^3 GAL)	(LB/MMBTU)
PM	0.7	0.008	0.7	0.008
SO_2	0.01	1.093E-04	0.01	1.093E-04
NO_X	13	0.142	13	0.142
CO	7.5	0.082	7.5	0.082
TOC	1.0	0.011	1.0	0.011

FUEL	%	TRUE	96.80	TRUE
SIZE	MMBTU	TRUE	15.00	FALSE
		1	0.968	0

CLASS= INDUSTRIAL

ASSUMES ALL PM IS LESS THAN PM-10
S EQUALS THE SULFUR CONTENT EXPRESSED IN GR/100 FT3
ASSUMES A HEATING VALUE OF 91.5 MMBTU/1000 GAL FOR PROPANE AND 102 MMBTU/1000 GAL FOR BUTANE.
**VOC = NMTOC = TOC * (1-%METHANE)

All emission factors are from AP-42 Section 1.5 revised 7/2008

SIZE CLASSIFICATION SUMMARY

mmBTU/hr	Classification
<10	COMMERCIAL
10-100	SMALL INDUSTRIAL*
>100	LARGE INDUSTRIAL*

* same factors used for Large and Small Industrial

GREENHOUSE GASES - Emission Factors from Tables C-1 and C-2
EPA Mandatory Reporting Rule, http://www.epa.gov/climatechange/emissions/downloads09/GHG-MRR-FinalRule.pdf

	PROPANE	BUTANE	LPG
POLLUTANT	COMBUSTION - Any Unit	COMBUSTION - Any Unit	COMBUSTION - Any Unit
	(kg/MMBTU)	(kg/MMBTU)	(kg/MMBTU)
CO_2	61.460	65.150	62.980
CH_4	0.003	0.003	0.003
N_2O	0.0006	0.0006	0.0006

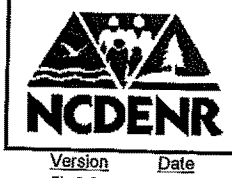
EMISSION FACTORS ARE BASED ON FUEL CHOSEN from INPUT TAB

	PROPANE
POLLUTANT	COMBUSTION - Any Unit
	(kg/MMBTU)
CO_2	61.460
CH_4	0.003
N_2O	0.0006

CALCULATED FROM INPUT SCREEN VALUES

	ACTUAL	POTENTIAL	REQUESTED/PERMITTED/LIMITED POTENTIAL
HOURLY MMBTU:	15.00	15.00	15.00
DAILY MMBTU:	360	360	360
YEARLY MMBTU:	31235.6	131400	31200

LIQUEFIED PETROLEUM GAS (LPG) COMBUSTION EMISSIONS CALCULATOR - REVISION D 2/1/2010 - REVISION SCREEN



Instructions: Enter emission source / facility data on the "INPUT" tab/screen. The air emission results and summary of input data are viewed / printed on the "OUTPUT" tab/screen. The different tabs are on the bottom of this screen.

This spreadsheet is for your use only and should be used with caution. DENR does not guarantee the accuracy of the information contained. This spreadsheet is subject to continual revision and updating. It is your responsibility to be aware of the most current information available. DENR is not responsible for errors or omissions that may be contained herein.

Version	Date	Author	Revisions
5b-2.0a	4/15/1997	Tony Pendola	Added "LPG" to the title Unprotected cells below Source ID# and at the bottom of the spreadsheet Changed outline around lpg parameters to dashed lines to indicate that the user does not need to change these values
LPG2002B	7/31/2002	Janet Boyer	Put into new format.
LPG2002C	10/30/2008	D. Hayes	Updated criteria pollutant emission factors with the newly revised AP-42 factors (Section 1.5 - July, 2008). Added Greenhouse gas pollutant emissions information.
LPG2010D	2/1/2010	Sushma Masemore	Revised GHG calculations such that the ACTUAL emissions calculated are consistent with the EPA GHG Mandatory Reporting Rule